

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KENNETH G. FLUGAUR
and
MARTIN A. SCHLECHT

Appeal No. 2005-1103
Application 09/460,638

ON BRIEF

Before DELMENDO, JEFFREY T. SMITH, and FRANKLIN, Administrative Patent Judges.

FRANKLIN, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. §134 of the examiner's final rejection of claims 1-20. A copy of each of these claims is set forth in the attached appendix.

The references relied upon by the examiner are:

Curtis	4,328,068	May 4, 1982
Foster et al. (Foster)	5,665,640	Sep. 9, 1997
Ishikawa et al. (Ishikawa)	6,143,078	Nov. 7, 2000

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I. Claims 1-10, 12-17, and 20 stand rejected under 35 U.S.C. §103 as being obvious over Foster in view of Ishikawa.

II. Claims 11, 18, and 19 stand rejected under 35 U.S.C. §103 as being obvious over Foster and Ishikawa in view of Curtis.

We have reviewed appellants' brief and reply brief, the examiner's answer, and the evidence of record. This review has led us to the following determinations.

OPINION

I. New Ground of Rejection

For each of the prior art rejections, the same critical issue is raised (among other issues). The critical issue is whether the applied art suggests a one-piece outer portion having dimensions effective to prevent or inhibit plasma arcing to an electrically conductive surface of an **aperture** [emphasis added].

On page 3 of the Final Office Action mailed December 8, 2003, the examiner explains that the plasma processing chamber (item 220 of Figure 2B) has at least one aperture (within cylinder 238) therein. The examiner states that the one aperture has an exposed electrically conductive surface, which is item 222. From the perspective of Figure 2 of Foster, Figure 2 shows a plasma processing chamber, 40. The examiner states that the electrically conductive surface is showerhead 52. Answer, pages

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4-5. Hence, it is the examiner's position that the aperture comprises cylinder assembly 50.

Appellants argue that item 222 does not appear to be a surface of an aperture, and that "within cylinder 238" is not through the electrode 222. Brief, pages 7-8, and Reply Brief, page 3-4.

In view of the above, it is evident that meaning of the word "aperture" is critical to resolving the issue in the instant case.

We note that the purpose of the second paragraph of Section 112 is to basically insure, with a reasonable degree of particularity, an adequate notification of the metes and bounds of what is being claimed. See In re Hammack, 427 F.2d 1378, 1382, 166 USPQ 204, 208 (CCPA 1970).

We also note that the court stated in In re Moore, 439 F.2d 1232, 1235, 169 USPQ 236, 238 (CCPA 1971), that the determination of whether the claims of an application satisfy the requirements of the second paragraph of Section 112 is

To determine whether the claims do, in fact, set out and circumscribe a particular area with a reasonable degree of precision and particularity. It is here where the definiteness of language employed must be analyzed - not in a vacuum, but always in light of the teachings of the prior art and of the particular application disclosure as it would be interpreted by one possessing the ordinary level of skill in the pertinent art.
[footnote omitted.]

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Upon review of appellants' disclosure (which includes Figures 1 and 2), we cannot find a clear depiction of the plasma chamber aperture in order to assess the meaning of the word "aperture". The examiner refers to page 7 of appellants' specification, wherein the plasma chamber aperture is mentioned. Final Office Action mailed December 8, 2003, page 10.¹ A detailed description of the chamber aperture is not set forth therein. Notably, Figures 1 and 2 do not provide additional clarity in this regard. As such, the claims, as presently written, do not circumscribe the boundaries of the claims with a reasonable degree of particularity. Id.

In view of the above, we reject claims 1-20, anew, under 35 U.S.C. § 112, second paragraph (indefiniteness).²

1 The examiner compares appellants' chamber aperture with Fosters chamber aperture ("within cylinder 238"); yet, it is not made clear what represents appellants' "chamber aperture".

2 We note that each of the independent claims (claims 1, 6, and 8) include recitations regarding the aperture.

II. The Prior Art Rejections

Analysis of whether a claim is patentable over the prior art under 35 U.S.C. § 102 or § 103 begins with determination of the scope of the claim. The properly interpreted claim must then be compared with the prior art.

Because the appealed claims fail to satisfy the definiteness requirements of the second paragraph of § 112, it reasonably follows that the examiner's rejections under § 103 cannot be reached at this time. That is, the metes and bounds of the appealed claims are unclear and indefinite to the extent that it is impossible to ascertain the propriety of the grounds of rejection under 35 U.S.C. § 103. See In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970); In re Steele, 305 F.2d 859, 862-63, 134 USPQ 292, 295-96 (CCPA 1962).

To that end, the predecessor of our appellant reviewing court has held that it is erroneous to analyze claims based on "speculation as to the meaning of the terms employed and assumptions" as to their scope. In re Steele, 305 F.2d 859, 862, 134 USPQ 292, 295 (CCPA).

Consequently, in comparing the claimed subject matter with the applied art, it is apparent that considerable speculations and assumptions are necessary in order to determine what in fact is being claimed. Since a rejection based on prior art cannot be

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based on speculations and assumptions, we reverse, pro forma, the examiner's § 103 rejections. Id.

It is noteworthy that this is a procedural reversal rather than one based upon the merits of the 35 U.S.C. § 103 rejections.

III. Procedural Guidelines

This decision contains a new ground of rejection pursuant to 37 CFR § 41.50(b)(1) and (2). 37 CFR § 41.50(b) provides that "A new ground of rejection shall not be considered final for purposes of judicial review."

37 CFR § 41.50(b)(1) and (2) provides that when the Board makes a new ground of rejection, the appellant, within two months from the date of the decision, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

(1) Reopen prosecution. Submit an appropriate amendment of the claims so rejected or new evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the proceeding will be remanded to the examiner. The new ground of rejection is binding upon the examiner unless an amendment or new evidence not previously of record is made which, in the opinion of the examiner, overcomes the new ground of rejection stated in the decision. Should the

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examiner reject the claims, appellant may again appeal to the Board pursuant to this subpart.

(2) Request rehearing. Request that the proceeding be reheard under § 41.52 by the Board upon the same record. The request for rehearing must address any new ground of rejection and state with particularity the points believed to have been misapprehended or overlooked in entering the new ground of rejection and also state all other grounds upon which rehearing is sought.

37 CFR § 41.50 (f) provides that extensions of time under § 1.136(a) of this title for patent applications are not applicable to the time periods set forth in this section. See § 1.136(b) of this title for extensions of time to reply for patent applications and § 1.550(c) of this title for extensions of time to reply for ex parte reexamination proceedings.

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IV. Conclusion

Each of the art rejections is reversed, pro forma.

Claims 1-20 are rejected, anew, under 35 U.S.C. § 112,
second paragraph (indefiniteness).

REVERSED
& § 41.50(b)


Romulo H. Delmendo)
Administrative Patent Judge)


Jeffrey T. Smith
Administrative Patent Judge

Beverly A. Franklin
Administrative Patent Judge

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APPENDIX

1. A device comprising:

a one-piece outer portion consisting of an electrically insulative material and having dimensions effective to prevent or inhibit plasma arcing to an electrically conductive surface of an aperture through a wall of a plasma processing chamber, said one-piece outer portion further comprising:

(i) a flange section configured to remain outside of said wall;

(ii) a lower section having a shape approximately said aperture to fit into said aperture; and

(iii) an inner opening communicating through the electrically insulative material between a bottom and a top of the outer portion.

2. A plasma processing chamber having:

at least one aperture therein, the at least one aperture having an exposed electrically conductive surface, and

the device of Claim 1, located inside the aperture.

3. A method of making a plasma processing chamber, the chamber having at least one aperture therein, the at least one aperture having an exposed electrically conductive surface, the method comprising inserting the device of Claim 1 into the aperture.

4. A method of processing a workpiece, comprising the following steps:

(A) exposing the workpiece to a plasma in the plasma processing chamber of Claim 2; and

(B) transmitting a signal through the device out from the plasma processing chamber.

5. A plasma processing chamber having:

a wall;

at least one aperture through said wall, the at least one aperture having an exposed electrically conductive surface, and

a one-piece sleeve inside the aperture, the one-piece sleeve consisting of an electrically insulative material and having:

(i) dimensions effective to prevent or inhibit plasma arcing to the exposed electrically conductive surface of the aperture;

(ii) a flange section configured to remain outside said wall;

(iii) a lower section having a shape approximate said aperture to fit into said aperture; and

(iv) an inner opening communicating through the electrically insulative material from a bottom to a top of the one-piece sleeve.

6. A method of making a plasma processing chamber having a wall, the method comprising:

(A) forming at least one aperture through said wall, the at least one aperture having an exposed electrically conductive surface; and

(B) inserting a one-piece sleeve into the aperture, the one-piece sleeve consisting of an electrically insulative material and having:

(i) dimensions effective to prevent or inhibit plasma arcing to the exposed electrically conductive surface of the aperture;

(ii) a flange section configured to remain outside said wall;

(iii) a lower section having a shape approximate said aperture to fit into said aperture; and

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(iv) an inner opening communicating through the electrically insulative material between a bottom and a top of the one-piece sleeve.

7. The method of Claim 6, further comprising, prior to inserting said one-piece sleeve, the step of forming said bottom of said one-piece sleeve to a plane having a non-orthogonal angle relative to said inner opening.

8. A method of processing a workpiece, comprising:

(A) exposing the workpiece to a plasma in a chamber, the chamber having (1) a wall, (2) an aperture having an exposed electrically conductive surface through said wall, and (3) a one-piece sleeve in the aperture, the one-piece sleeve consisting of an electrically insulative material and having:

(i) dimensions effective to prevent or inhibit plasma arcing to the exposed electrically conductive surface of the aperture,

(ii) a flange section configured to remain outside said wall,

(iii) a lower section having a shape approximate a width of said aperture to fit into said aperture; and

(iv) an inner opening communicating through the electrically insulative material between a bottom and a top of the one-piece sleeve; and

(B) transmitting a signal through the one-piece sleeve out from the chamber.

9. A method of operating a plasma processing chamber, wherein the chamber has at least one aperture therein and the aperture has an exposed electrically conductive surface, the method comprising the steps of:

(A) initiating a plasma in the chamber, the aperture having the device of Claim 1 therein, then

(B) cleaning the chamber and the device.

10. The method of Claim 9, wherein said plasma exists in said chamber for a predetermined period of time.

11. The method of Claim 9, further comprising, prior to step B, the steps of:

exposing a workpiece to the plasma, and

transmitting a spectroscopic signal through the device indicating an etching endpoint.

12. The device according to claim 1, wherein

said flange section has a width that is greater than a corresponding width of said aperture.

13. The device according to claim 12, wherein said device applies a predetermined amount of pressure against an inner wall of said aperture.

14. The device according to claim 12, wherein said lower section has a first length and said flange section has a second length.

15. The device according to claim 14, wherein said first length is greater than a length of said aperture.

16. The device according to claim 1, wherein an outer surface of said device forms an angle with reference to the bottom of said device.

17. The device according to claim 16, wherein said angle is non-orthogonal.

18. The device according to claim 1, wherein said inner opening transfers a spectroscopic endpoint detection signal.

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19. The plasma processing chamber of claim 2, wherein said at least one aperture comprises an endpoint detection channel.

20. The device according to claim 1, wherein the electrically insulative material is selected from the group consisting of ceramics, multi-crystal ceramics, polyvinyl polymers, polytetrafluoroethylene, polyethylene, polypropylene, polyimides, polycarbonates and single crystal insulative minerals.